
Subject: CDF question

Posted by [thompson](#) on Wed, 27 Dec 1995 08:00:00 GMT

[View Forum Message](#) <> [Reply to Message](#)

Please excuse me if this is a little outside the scope of this newsgroup, but I couldn't find one specifically for Common Data Format.

I'm reading some FITS binary table files that were converted from CDF format. The original CDF files have descriptions such as

```
!----- --
! Variable      Data      Number  Record  Dim
! Name          Type      Elements  Variance  Variance
! -----
! "LAT_SPACE"   CDF_REAL8      1      T      F

! Attribute Data      Value
! Name      Type
!-----
"FIELDNAM" CDF_CHAR    { "Heliographic Lat of the Craft" }
"VALIDMIN" CDF_REAL8   { -1.570796327 }
"VALIDMAX" CDF_REAL8   { 1.570796327 }
"SCALEMIN" CDF_REAL8   { -1.570796327 }
"SCALEMAX" CDF_REAL8   { 1.570796327 }
"LABLAXIS" CDF_CHAR    { "Helio Lat" }
"UNITS"    CDF_CHAR    { "rad" }
"FORMAT"   CDF_CHAR    { "F7.3" }
"DEPEND_0" CDF_CHAR    { "Epoch" }
"FILLVAL"  CDF_REAL8    { -1.0E31 }
"VAR_TYPE" CDF_CHAR    { "data" }
"DICT_KEY" CDF_CHAR     { " " }.
```

It appears that the data in the FITS binary table file has the same resolution as that given in the FORMAT statement, rather than the full resolution of the Real*8 data type. In the above example, the numbers are quantized to 0.001 radians, even though the double precision numbers are theoretically much more precise than this.

I'm not very familiar with CDF, so I have some simple questions:

1. Are all CDF files written out to the resolution given by the FORMAT statement? Or is there a mode of writing CDF files that automatically applies this quantization?
2. If not, is it possible that the process of reading the CDF file unintentionally quantized the values? In other words, is there a mode of reading CDF files that automatically applies this quantization?

3. Failing the above two possibilities, is it standard practice for CDF files written by some of the groups here at Goddard to write out data to a quantization given by the FORMAT specification.

Please excuse these possibly naive questions.

Thank you,

Bill Thompson

Subject: Re: CDF question

Posted by [davidf](#) on Mon, 12 Apr 1999 07:00:00 GMT

[View Forum Message](#) <> [Reply to Message](#)

Harald Frey (hfrey@ssl.berkeley.edu) writes:

```
> I found at least the solution for the first problem. In some way IDL is
> sensitive to upper/lower case
> statements in that case. I have a variable in the cdf-file 'EPOCH'.
>
> IDL> print,!version
> { sparc sunos unix 5.1 Apr 13 1998}
> IDL> id=cdf_open('WIC')
> IDL> result2=cdf_varinq(id,1)
> IDL> print,result2.name
> EPOCH
> IDL> var=result2.name
> IDL> cdf_control,id,variable=var,get_var_info=info
> IDL> help,info,/struc
> ** Structure <83850>, 7 tags, length=28, refs=1:
> EXTENDRECS    LONG          0
> MAXALLOCREC   LONG          3
> MAXREC        LONG          3
> MAXRECS       LONG          3
> NINDEXENTRIES LONG          2
> NINDEXRECORDS LONG          1
> PADVALUE      INT           0
>
> Everything works in this case. However, if I specify the variable var in
> lower
```

File names on UNIX systems are **always** case sensitive.
And string comparisons in IDL are **always** case sensitive,
since an uppercase letter has a different ASCII value than
a lowercase letter.

Cheers,

David

--

David Fanning, Ph.D.

Fanning Software Consulting

Phone: 970-221-0438 E-Mail: davidf@dfanning.com

Coyote's Guide to IDL Programming: <http://www.dfanning.com/>

Toll-Free IDL Book Orders: 1-888-461-0155

Subject: Re: CDF question

Posted by [Harald Frey](#) on Mon, 12 Apr 1999 07:00:00 GMT

[View Forum Message](#) <> [Reply to Message](#)

Harald Frey wrote:

```
> I started working with CDF files and encountered two problems/questions.
>
> 1.
> IDL> id=cdf_open('WIC')
> IDL> cdf_control,id,variable='epoch',get_var_info=info
> % CDF_CONTROL: Must specify a variable via VARIABLE keyword.
> % Execution halted at: READ_THE_WIC_CDF 26 read_the_wic_cdf.pro
> %
>           $MAIN$
>
> I think I have specified a variable 'epoch'?
>
> 2. I have several variables in a CDF record of different size (2D
> arrays, single numbers etc.). The procedure CDF_VARGET requires keywords
> interval and offset. How do I specify these vectors in a universal
> manner?
>
> I would very much appreciate getting an example program.
>
> Harald Frey
> Space Sciences Laboratory
> UC Berkeley
>
> hfrey@ssl.berkeley.edu
```

I found at least the solution for the first problem. In some way IDL is sensitive to upper/lower case statements in that case. I have a variable in the cdf-file 'EPOCH'.

```
IDL> print,!version
{ sparc sunos unix 5.1 Apr 13 1998}
IDL> id=cdf_open('WIC')
IDL> result2=cdf_varinq(id,1)
```

```
IDL> print,result2.name
EPOCH
IDL> var=result2.name
IDL> cdf_control,id,variable=var,get_var_info=info
IDL> help,info,/struc
** Structure <83850>, 7 tags, length=28, refs=1:
  EXTENDRECS    LONG          0
  MAXALLOCREC   LONG          3
  MAXREC        LONG          3
  MAXRECS       LONG          3
  NINDEXENTRIES LONG          2
  NINDEXRECORDS LONG          1
  PADVALUE      INT           0
```

Everything works in this case. However, if I specify the variable var in lower case letters, then I get this stupid and misleading error message.

```
IDL> var='epoch'
IDL> cdf_control,id,variable=var,get_var_info=info
% CDF_CONTROL: Must specify a variable via VARIABLE keyword.
% Execution halted at: $MAIN$
```

I don't fully understand this behaviour. Maybe it's UNIX related? But cdf-files should be platform compatible. However, I found my way around it and don't care much more.

Harald

Subject: Re: CDF question
Posted by [davidf](#) on Mon, 12 Apr 1999 07:00:00 GMT
[View Forum Message](#) <> [Reply to Message](#)

Harald Frey (hfrey@ssl.berkeley.edu) writes:

> I agree, that string comparisons are case sensitive. However, the online
> documentation for cdf_control:

Oh, well, on-line documentation...

This is not my favorite subject right at the moment. :-(

Cheers,

David

--

David Fanning, Ph.D.

Fanning Software Consulting

Phone: 970-221-0438 E-Mail: davidf@dfanning.com

Coyote's Guide to IDL Programming: <http://www.dfanning.com/>

Toll-Free IDL Book Orders: 1-888-461-0155

Subject: Re: CDF question

Posted by [Harald Frey](#) on Mon, 12 Apr 1999 07:00:00 GMT

[View Forum Message](#) <> [Reply to Message](#)

David Fanning wrote:

>
> File names on UNIX systems are **always** case sensitive.
> And string comparisons in IDL are **always** case sensitive,
> since an uppercase letter has a different ASCII value than
> a lowercase letter.
>
> Cheers,
>
> David
> --

I agree, that string comparisons are case sensitive. However, the online documentation for `cdf_control`:

> VARIABLE
> Set this keyword to a name or index to set the current variable. For example,
>
> CDF_CONTROL, id, VAR='MyData', SET_INITIALRECS=20
>
> specifies that the variable MyData should have 20 records written to it initially.

did not sound like a string comparison to me.

Harald

hfrey@ssl.berkeley.edu
